

Table 3-7a
Development of Risk-Based Concentrations for Upland Soil
Western Meadowlark
Investigation Area H1 Feasibility Study
Mare Island, Vallejo, California

$$RBC_{\text{soil}} = BW \times TRV \times HQ / [(IR_{\text{prey1}} \times BAF_1) + (IR_{\text{prey2}} \times BAF_2) + IR_{\text{soil}}] \times SUF]$$

COEC ^a	BAF ^b		TRV (mg/kg BW-day)		RBC- Soil (mg/kg)	
	Upland Plant Tissue	Earthworm Tissue	Low	High	TRV-Low	TRV-High
Inorganics						
Antimony	--	2.72E-01	NTV	NTV	--	--
Arsenic	--	1.84E+00	5.5	22	19.4	77.7
Cadmium	--	3.31E+00	0.08	10.4	0.16	21.2
Chromium	--	2.60E-01	2.66	2.78	44.3	46.3
Cobalt	--	--	7.61	17	327	730
Copper	--	3.88E-01	2.30	52.3	29.5	670
Lead	1.21E-02	2.80E-01	0.014	8.75	0.22	137
Manganese	2.89E-02	1.68E-01	77.6	776	1573	15725
Mercury	--	--	0.039	0.18	1.7	7.7
Molybdenum	3.47E+00	--	3.5	35.3	11.3	114
Nickel	--	--	1.38	56.3	59.2	2417
Selenium	--	4.24E+00	0.23	0.93	0.37	1.5
Silver	--	4.83E+01	178	NTV	26	--
Thallium	--	--	0.35	NTV	15	--
Vanadium	--	1.61E-01	11.4	114	248	2477
Zinc	1.11E-01	7.20E-01	17.2	172	128	1283
Organics						
PCBs	1.99E-01	6.69E+00	0.09	1.27	0.091	1.3
DDTs	1.50E+01	7.27E+00	0.009	1.5	0.004	0.65
Benzo(a)anthracene	--	--	NTV	NTV	--	--
Benzo(a)pyrene	--	3.35E-02	0.001	0.01	0.036	0.36
Benzo(b)fluoranthene	2.57E-01	2.05E-02	NTV	NTV	--	--
Benzo(k)fluoranthene	--	--	NTV	NTV	--	--

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Exposure Assumptions and Equation:^c

	Value	Units	
IRprey(dry wt.) =	0.017	kg/day (dry weight)	-- = Not available
IRplant(dry wt. ^f) =	0.0063	kg/day (dry weight)	NTV = No toxicity value
IRearthworm(dry wt.) ^f =	0.0107	kg/day (dry weight)	
IRsoil (dry wt.) ^d =	0.00177	kg-day (dry weight)	
Site Use Factor ^e =	100%	percent	
Body Weight =	0.0759	kg	
Hazard Quotient (HQ) =	1	unitless	

Notes:

- a - Constituent of ecological concern.
- b - Dry weight basis earthworm BAFs presented in Table 3-6a.
- c - Exposure parameters used to calculate risk are discussed in detail in the BERA.
- d - Ingestion rate of soil based on 10.4 percent of the prey ingestion rate (dry weight); based on American woodcock (Beyer et al. 1994).
- e - Site use factor was based on a conservative 100% use of the site for the meadowlark's foraging range.
- f - Based on dietary composition of 37% plant and 63% earthworm (Zeiner et al, 1990).